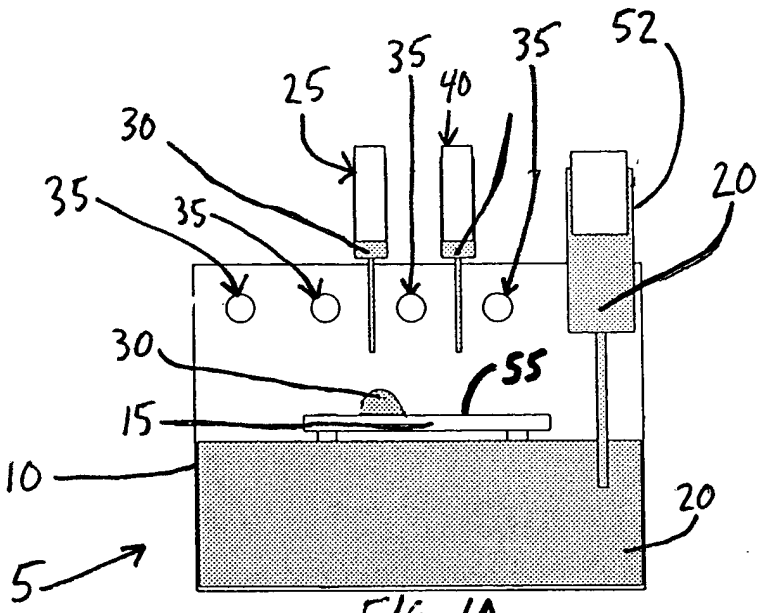


FIG. 1A

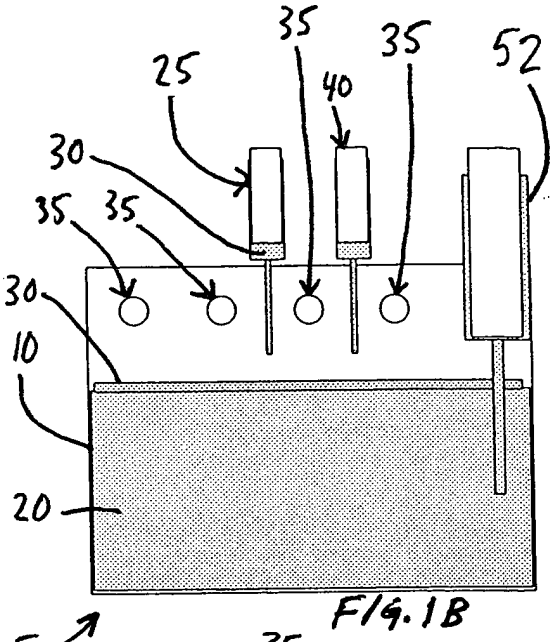


FIG. 1B

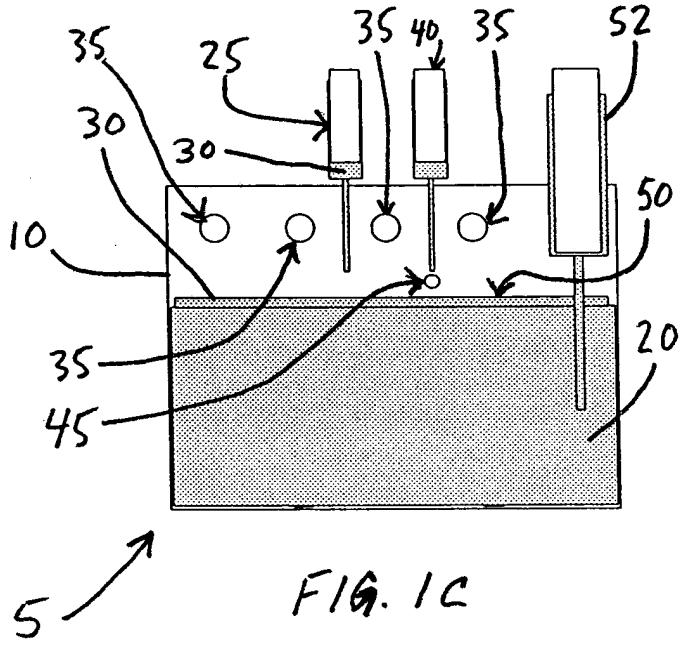


FIG. 1C

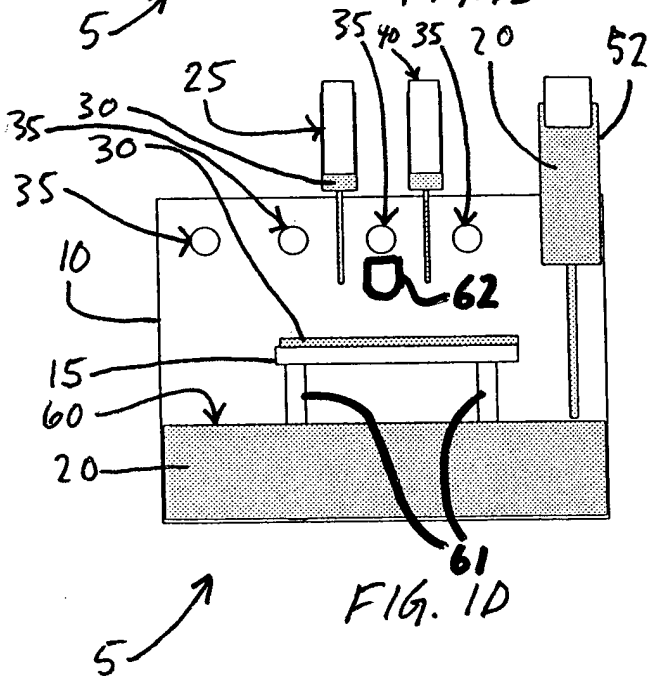


FIG. 1D

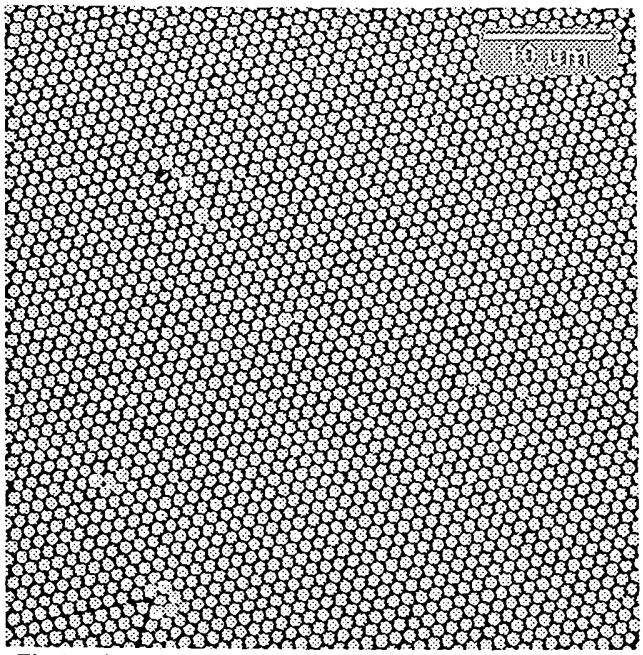


Fig 2 spheres are arranged in nearly perfect crystal order.

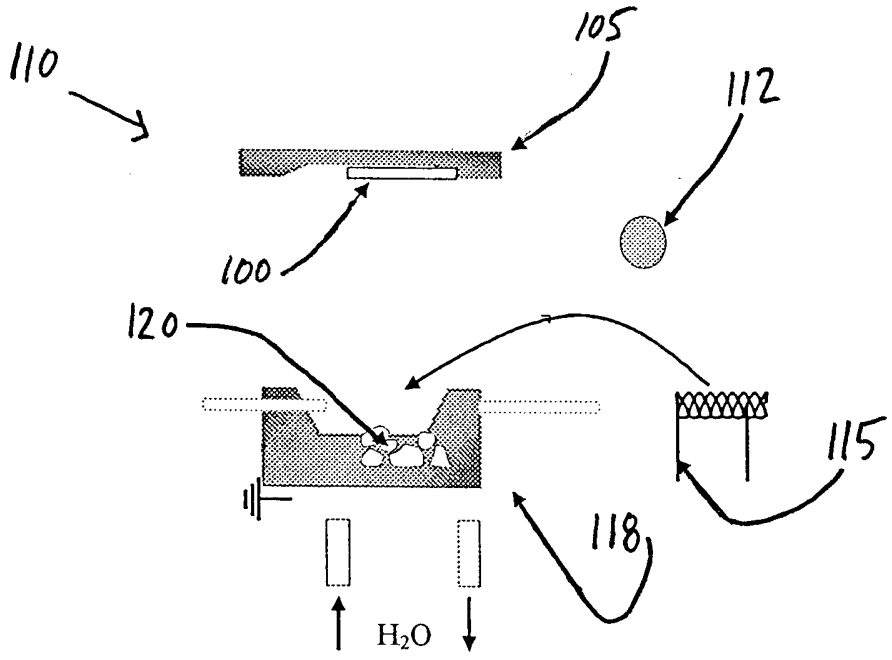


Fig. 3. Electron beam evaporation of nickel onto the prepared substrate

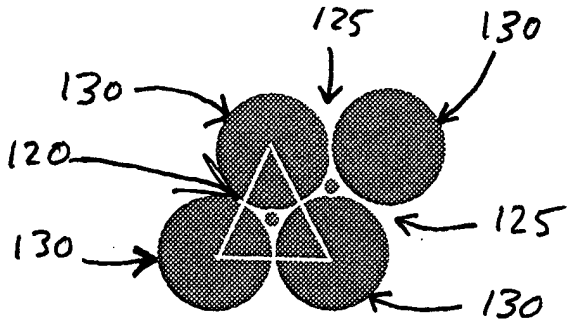


Fig. 4 Deposition through the interstitial spaces results in triangular shaped deposits on the surface.

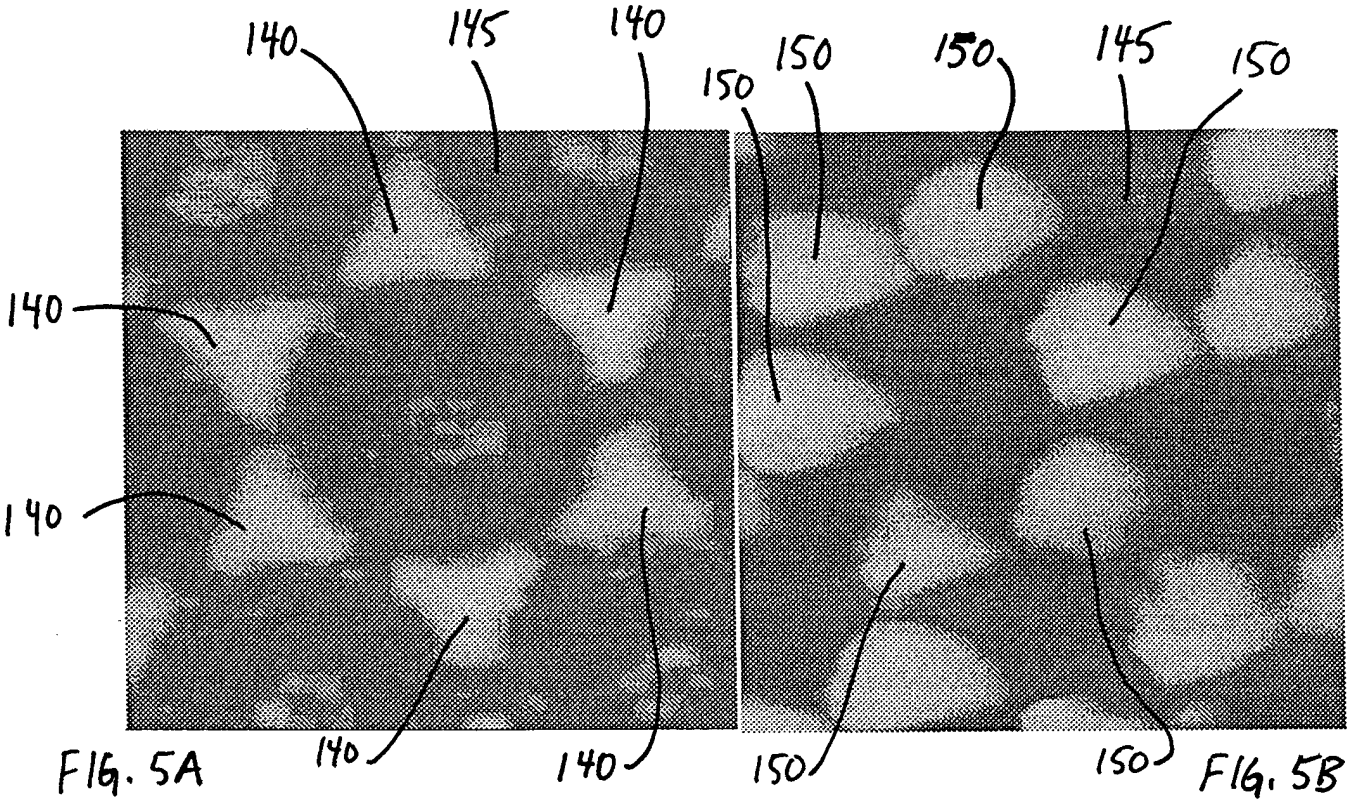


Fig 5 (A) After coating and removal of the sphere mask, an array of deposited triangles is exposed, and 5 (B) After a thermal anneal at 800C, the particles become more spherical.

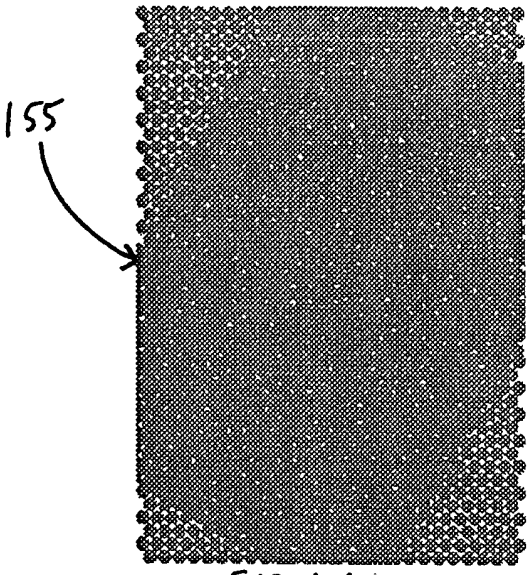


FIG. 6A

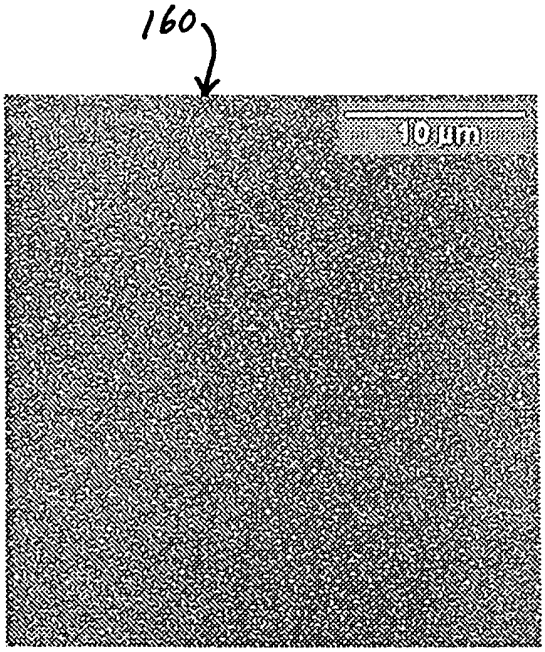


FIG. 6B

Figure 6A schematically represents the pattern generated by two monolayers offset by 30 degrees. Figure 6B is an microscopy image of such an array fabricated with the disclosed method.

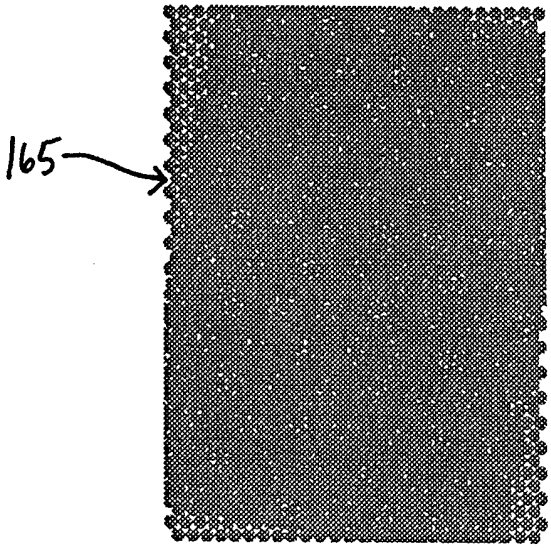


FIG. 7A

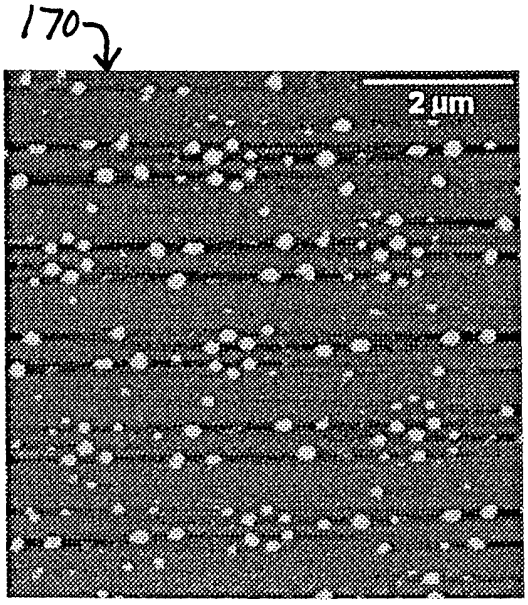


FIG. 7B

Figure 7A schematically represents the pattern generated by two monolayers offset by 10 degrees. Figure 6B is an microscopy image of such an array fabricated with the disclosed method.

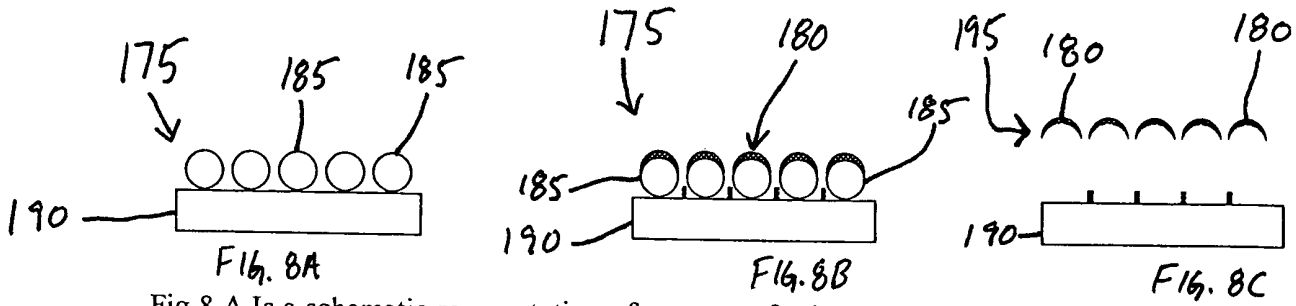


Fig 8.A Is a schematic represntation of an array of spheres on a surface. Fig 8B represents a coating atop the spheres, which leaves deposits in the interstices between spheres. Figure 8C shows the effect of dissolution of the spheres, and the resulting freestanding mask with holes plus the substrate with its corresponding deposits.